

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An oligonucleotide comprising:

5'TCGX₁X₂N₁3'

wherein X₁ is any nucleotide, X₂ is A, T, or C when X₁ is C or A, X₂ is A or G when X₁ is T, X₂ is any nucleotide when X₁ is G, N₁ is 2-95 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, and wherein N₁ does not include an unmethylated CG motif, wherein the oligonucleotide is 20-100 nucleotides in length.

2. (Withdrawn) An oligonucleotide comprising:

5'TCGTN₁3'

wherein N₁ is 3-96 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein N₁ does not include an unmethylated CG motif and when N₁ is 16 nucleotides N₁ does not include a C₁₂ and when N₁ is 8 nucleotides N₁ is at least 50% C or 70% T.

3. (Withdrawn) An oligonucleotide comprising:

5'TCGAN₁3'

wherein N₁ is 3-96 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein N₁ does not include an unmethylated CG motif and when N₁ is 19 nucleotides N₁ is at least 55% pyrimidine, and when N₁ is 8 nucleotides N₁ is at least 50% T or C.

4. (Withdrawn) An oligonucleotide comprising:

5'TCGN₁3'

wherein N₁ is 10-96 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein the C content of the oligonucleotide is less than or equal to 60%, and the A content is less than or equal to 30%, and wherein N₁ does not include an unmethylated CG motif.

N₁ N₂ N₃TCG W N₄ N₅ N₆

N is any TCG

5. (Withdrawn) An oligonucleotide comprising:
5'TYZN₁3'
wherein Y is a cytosine or modified cystosine, wherein Z is a guanine or modified guanine, N₁ is 4-97 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, and wherein the oligonucleotide does not include an unmethylated CG motif.

6. (Previously Presented) The oligonucleotide of claim 1, wherein the oligonucleotide includes at least 1 modified internucleotide linkage.

7. (Previously Presented) The oligonucleotide of claim 1, wherein the oligonucleotide includes at least 50% modified internucleotide linkage.

8. (Previously Presented) The oligonucleotide of claim 1, wherein all internucleotide linkages of the oligonucleotide are modified.

9. (Cancelled).

10. (Original) The oligonucleotide of claim 6, wherein the stabilized internucleotide linkage is a phosphorothioate linkage.

11. (Withdrawn) The oligonucleotide of claim 3, wherein the oligonucleotide has the following structure:

5' T*C*G*A*G*G*A*C*T*T*C*T*C*T*C*A*G*G*T*T 3' (SEQ. ID NO.: 50) and wherein * refers to a phosphorothioate linkage.

12. (Withdrawn) The oligonucleotide of claim 2, wherein the oligonucleotide has the following structure: 5' T*C*G*T*T*T*T*T*T*T*T*T*T*T*T*T*T 3' (SEQ. ID NO.: 2) and wherein * refers to a phosphorothioate linkage.

13. (Withdrawn) The oligonucleotide of claim 1, wherein N₁ is N₂N₃ and wherein N₂ is 8-94 nucleotides and N₃ is 2-5 pyrimidines.

14. (Withdrawn) The oligonucleotide of claim 13, wherein N₃ is TTTTT.

15. (Withdrawn) The oligonucleotide of claim 13, wherein N₃ is TT.

16. (Withdrawn) The oligonucleotide of claim 13, wherein N₂ is 8-40 nucleotides.

17. (Previously Presented) The oligonucleotide of claim 1, wherein N₁ is at least 50% pyrimidine.

18. (Previously Presented) The oligonucleotide of claim 1, wherein N₁ is at least 80% pyrimidine.

19. (Previously Presented) The oligonucleotide of claim 1, wherein N₁ is free of Poly-A and Poly-G sequences.

20. (Withdrawn) The oligonucleotide of claim 1, wherein N₁ is TN₂ and wherein N₂ is 8-94 nucleotides.

21. (Withdrawn) The oligonucleotide of claim 1, wherein Y is selected from the group of modified cytosine bases consisting of 5-methyl cytosine, 5-methyl-isocytosine, 5-hydroxy-cytosine, 5-halogeno cytosine, uracil, N4-ethyl-cytosine, and 5-fluoro-uracil.

22. (Withdrawn) The oligonucleotide of claims 1, wherein Z is selected from the group of modified guanine bases consisting of 7-deazaguanine, 7-deaza-7-substituted guanine (such as 7-deaza-7-(C2:C6)alkynylguanine), 7-deaza-8-substituted guanine, hypoxanthine, 2,6-diaminopurine, 2-aminopurine, purine, 8-substituted guanine such as 8-hydroxyguanine, and 6-thioguanine, and 2-aminopurine.

23. (Previously Presented) The oligonucleotide of claim 1, wherein the oligonucleotide has a 3'-3' linkage with one or two accessible 5' ends.

24. (Original) The oligonucleotide of claim 23, wherein the oligonucleotide has two accessible 5' ends, each of which are 5'TCG.

25. (Withdrawn) A method for treating allergy or asthma, comprising:
administering to a subject having or at risk of having allergy or asthma an oligonucleotide of claim 1 in an effective amount to treat allergy or asthma.

26. (Withdrawn) The method of claim 25, wherein the oligonucleotide is administered to a respiratory tissue.

27. (Withdrawn) The method of claim 25, wherein the subject has or is at risk of developing allergic asthma.

28. (Withdrawn) A method for inducing cytokine production, comprising:
administering to a subject an oligonucleotide of claim 1 in an effective amount to induce a cytokine selected from the group consisting of IP10, IL6, IL12, IL18, TNF, chemokines, IFN- α and IFN- γ .

29. (Withdrawn) A method for treating infectious disease, comprising:

administering to a subject having or at risk of having an infectious disease an oligonucleotide of claim 1 in an effective amount to treat the infectious disease.

30. (Withdrawn) The method of claim 29 wherein the subject has or is at risk of having a bacterial infection.

31. (Withdrawn) The method of claim 29 wherein the subject has or is at risk of having a viral infection.

32. (Withdrawn) A method for treating cancer, comprising:
administering to a subject having or at risk of having cancer an oligonucleotide of claim 1 in an effective amount to treat cancer.

33. (Withdrawn) The method of claim 32, wherein the cancer is selected from the group consisting of biliary tract cancer, breast cancer, cervical cancer, choriocarcinoma, colon cancer, endometrial cancer, gastric cancer, intraepithelial neoplasms, lymphomas, liver cancer, lung cancer (e.g. small cell and non-small cell), melanoma, neuroblastomas, ovarian cancer, pancreatic cancer, prostate cancer, rectal cancer, sarcomas, thyroid cancer, renal cancer, bone cancer, brain and CNS cancer, connective tissue cancer, esophageal cancer, eye cancer, Hodgkin's lymphoma, larynx cancer, oral cavity cancer, skin cancer, and testicular cancer, as well as other carcinomas and sarcomas.

34. (Withdrawn) The method of claim 32, further comprising administering an anti-cancer agent.

35. (Withdrawn) A method for inducing innate immunity in a subject, comprising:
administering to a subject an oligonucleotide of claim 1 in an effective amount to induce innate immunity.

36. (Withdrawn) A method for inducing a Th1 immune response, comprising:
administering to a subject an oligonucleotide of claim 1 in an effective amount to induce a Th1 immune response.

37. (Withdrawn) A method of modulating an immune response in a subject, comprising administering to the subject an effective amount for modulating an immune response of an oligonucleotide comprising:

5'-X₁YRM₁-3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide,

wherein X₁ is a nucleotide,

wherein Y is a cytosine or a modified cytosine,

wherein R is a guanine or a modified guanine,

and wherein M₁ is a nucleic acid of 1-3 nucleotides.

38-51. (Canceled).

52. (Withdrawn) A composition, comprising a multimerized complex of an oligonucleotide comprising:

5'-X₂YRM₂-3'

wherein X₂ is a nucleic acid that consists of a single nucleotide, or a dinucleotide or a trinucleotide that does not comprise a CG dinucleotide, wherein Y is a cytosine or a modified cytosine, wherein R is a guanine or a modified guanine, wherein M₂ is a nucleic acid of 0-27 nucleotides, and

a multimerization unit linked to the 3' end of the oligonucleotide.

53-62. (Canceled).

63. (Withdrawn) An oligonucleotide comprising:

5'-X₃CGM₃-3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein X₃ is a single nucleotide that does not comprise a CG dinucleotide, wherein M₃ is a nucleic acid of 3-27 nucleotides that is free of a CG dinucleotide, and wherein M has at least one of the following properties: is free of a TC dinucleotide, is at least 30% T nucleotides, consists of A, T, and G or is free of a CCTTCC hexamer having at least one modified internucleotide linkage.

64. (Withdrawn) An oligonucleotide comprising:

5'-X₄CGM₄-3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein X₄ is a dinucleotide that does not comprise a CG dinucleotide, wherein M is a nucleic acid of 2-26 nucleotides that is free of a CG dinucleotide, and wherein M₄ has at least one of the following properties: is free of a TG or a GT dinucleotide, is at least 38% T nucleotides or consists of A and T.

65. (Withdrawn) An oligonucleotide comprising:

5'-X₅CGM₅-3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein X₅ is a trinucleotide that does not comprise a CG dinucleotide, wherein M₅ is a nucleic acid of 1-25 nucleotides that is free of a CG dinucleotide, and wherein M₅ has at least one of the following properties: is free of a CT dinucleotide and does not include at least one phosphorothioate linkage, is at least 41% T nucleotides, or consists of A and C.

66-67. (Canceled).

68. (Withdrawn) An oligonucleotide comprising:

5'-TTGM₆-3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein M_6 is a nucleic acid that consists of 5-21 nucleotides, wherein M does not comprise a CG dinucleotide, wherein M_6 is comprised of at least 30% T nucleotides, and wherein said nucleotide is 10-24 nucleotides in length.

69. (Withdrawn) An oligonucleotide comprising:

5'- X_6 CG M_7 -3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein X_6 is 1-3 nucleotides and does not include a CG dinucleotide, wherein M_7 is a nucleic acid of 6-27 nucleotides and includes at least three CG dinucleotides and is at least 50% T nucleotides.

70-74. (Canceled).

75. (Withdrawn) An oligonucleotide comprising:

5'-TTG M_8 -3'

wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, wherein M_7 is a nucleic acid of 6-18 nucleotides and includes at least one CG dinucleotide and is at least 50% T nucleotides.

76-89. (Canceled).

90. (New) An oligonucleotide comprising:

5'TCG $X_1X_2N_1$ 3'

wherein X_1 is any nucleotide, X_2 is A, T, or C when X_1 is C or A, X_2 is A or G when X_1 is T, X_2 is any nucleotide when X_1 is G, N_1 is 2-95 nucleotides, wherein 5' designates the 5' end of the oligonucleotide and 3' designates the 3' end of the oligonucleotide, and wherein N_1 does not include an unmethylated CG motif, wherein the oligonucleotide is 13-40 nucleotides in length.